

Remarks

The final Office Action dated February 24, 2009, lists the following rejections: claims 12-13 stand rejected under 35 U.S.C. § 102(b) over Bowes (U.S. Patent Pub. 2002/0182516); claims 1-3 stand rejected under 35 U.S.C. § 103(a) over Ki (U.S. Patent Pub. 2003/0068565) in view of the '516 reference; and claims 7-11 and 14-16 stand rejected under 35 U.S.C. § 103(a) over the '565 reference. The Office Action indicates that claims 4-6 would be allowable if rewritten in independent form. In this discussion set forth below, Applicant traverses each rejection and does not acquiesce to any rejection or averment in this Office Action unless Applicant expressly indicates otherwise. Moreover, as various rejections are repeated and/or rely upon the same reference as in the prior Office Action, Applicant maintains the traversals of and fully incorporates the prior Office Action Response herein.

Applicant understands that claims 4 – 6 are in condition for allowance, based upon the Examiner's indication and the above amendment to claim 4, which now includes limitations corresponding to those in base claim 1 and intervening claim 2.

The § 103 rejection of claims 7-11 and 14-16 over the sole '565 reference is erroneous because the discussion (at page 8) relies upon a "BOWES" reference that is not identified in the statement of rejection (at page 6), and further because no evidence of motivation has been cited in support of combining any "BOWES" reference with the '565 reference. The Office Action has therefore failed to comply with requirements of the M.P.E.P. and relevant law in establishing a *prima facie* § 103 rejection, and has also failed to establish a clear issue (*i.e.*, as required for appeal). Accordingly, the rejection must be reversed.

The § 103 rejections of claims 1-3 over the '565 and '516 references, as well as the § 103 rejections of claims 7-11 and 14-16 over the sole '565 reference, are also improper because the Office Action has mistakenly equated the cited use of masks on *different* wafers with the claimed use of masks on a *common* substrate, and has further failed to show correspondence to a composite mask as claimed. Specifically, the cited "second test wafer" in paragraph 0056, cannot "correspond to a second die position" as suggested in the Office Action because the claimed first and second die positions are on the same substrate (*see* claim 1, lines 3 and 7), whereas the cited second wafer is a

completely different wafer. Cited paragraph 0056 thus provides no correspondence to claim limitations directed to printing dark-field and clear-field masks at a first die position on a substrate, and to printing a composite mask pattern at a second die position on the same substrate. Where the same wafer is used in the '565 reference, the previous patterns must be removed, which would render the patterns ineffective for measurement as claimed (*see, e.g.*, paragraph 0056 in the '565 reference).

In addition, the Office Action has not asserted, and the cited portions of the '565 reference do not disclose, a composite mask pattern that is "based on features of the dark-field mask and the clear-field mask" as claimed. Applicant has reviewed cited paragraph 0056 and cannot ascertain any such disclosure, and the Office Action has provided no explanation as to where such disclosure lies. As each of independent claims 1, 7, 10, 11 and 12 (and the claims that depend therefrom) include such limitations to which no correspondence has been asserted, all of the § 103 rejections are improper.

The § 103 rejections of claims 1-3 and of claims 7-11 and 14-16 are further improper because the record has failed to establish teaching or suggestion of multiple limitations in each of the independent claims acknowledged as not present in the cited references, and because the assertions regarding "routine optimization" fail to comply with the requirements of M.P.E.P. § 2144.05. Referring to independent claim 1 by way of example (and as applicable to all § 103 rejections), the Office Action acknowledges that the '565 reference fails to disclose limitations directed to:

- 1) forming a first mask pattern and a second mask pattern in opposite corners;
- 2) first and second exposures in a first die position;
- 3) a composite pattern exposure in a second die position; and
- 4) measuring patterns in X and Y directions (for determining the effect of flare).

However, despite acknowledging that these and other limitations do not exist in the '565 reference, the Office Action has not provided any reference teaching or suggesting the limitations. In this regard, the Office Action has neither established sufficient correspondence, nor has it established a clear issue in the record regarding the rejected claims (as required under § 103 and applicable law).

The Office Action's assertions of what one skilled in the art "would have been motivated" to do or would have discovered by "routine experimentation" are devoid of

any evidence that there is a result-effective variable which has been recognized as useful for achieving an optimization goal already motivated by the cited art, as required by M.P.E.P. § 2144.05 (in the context of “ranges” but nonetheless applied by the Examiner here). This section of the M.P.E.P. clearly explains that a rejection is improper when the cited prior art does not teach that a parameter can be varied to achieve a recognized result (“Only Result-Effective Variables Can Be Optimized”). For the rejection presented in the instant Office Action, the Examiner has not provided any such evidence or even attempted to articulate any goal. Rather, the Office Action appears to simply allege that the claimed method simply could have been implemented with the cited reference, and has impermissibly based its assertions upon the Examiner’s unsupported opinion, which is further contrary to the claimed invention and the ‘565 reference itself.

For example, page 5 of the Office Action asserts the arrangement of “the mask patterns in suitable locations, such as opposite corners, as a matter of routine experimentation, in order to design the mask so that the flare measurement patterns are located in the proper area to measure the flare.” However, the Office Action has not provided any evidence that the prior art would have taught that the placement could be varied to achieve the “proper area to measure the flare” result (much less that such a result would function and/or have any usefulness in the ‘565 reference). The assertion that one of skill in the art would “utilize the first and second wafers, as different die positions during the exposures [are] a matter of routine experimentation” simply because the ‘565 reference “teaches both the use of one wafer, and two wafers” is similarly untenable. The Office Action has provided no explanation as to how the use of “one wafer, and two wafers” would somehow suggest experimentation regarding different die positions during exposures. Other assertions of “routine experimentation” are similarly erroneous, as are the assertions in the response to arguments section of the Office Action, which rely upon unsupported allegations of what the cited reference “may include” or may be used for, without showing actual correspondence in the prior art. In short, the record has, to date, failed to establish correspondence to multiple claim limitations. Accordingly, the § 103 rejections must be withdrawn.

Further regarding the above-discussed (and related) limitations to which the Office Action has provided no correspondence, Applicant submits that the Office Action

has also provided no explanation as to how the '565 reference could or would be modified to arrive at the claimed invention, and further that the '565 reference teaches away from those limitations that the Office Action has alleged to be obvious or the subject of routine experimentation. As discussed above, the '565 reference (as asserted) involves the use of different wafers to respectively print mask patterns. Where a single wafer is used, previous patterns are removed prior to printing additional patterns (see paragraph 0056 of the '565 reference). In this regard, it does not appear that the approach in the '565 reference is capable of developing printed patterns on a common substrate as claimed. Moreover, the cited portions in the '565 reference are alternative processes, and the Office Action has provided no explanation as to how the alternative processes could be or would be integrated. As previously discussed, according to the rule and law under §103, relied-upon teachings from an asserted reference must emanate from the same embodiment and cannot be asserted together to anticipate a claim unless the reference arranges the limitations as they are arranged in the claim. In this instance, they are not so arranged and the Office Action has provided no motivation for doing so.

Applicant further submits that the '565 reference teaches away from the claimed invention, in requiring either that a completely different wafer be used for the alleged second die position in paragraph 0056, or that previous printed patterns be first removed when a common substrate is used. In an effort to establish correspondence to the claimed invention, the proposed modification of the '565 reference would replace one or both of its pattern removal or second wafer approach, and thus undermine the purpose and implementation of the '565 reference. The M.P.E.P. explains that such a modification evidences that the prior art teaches away. *See, e.g.,* M.P.E.P. § 2143.01, *In re Gordon*, 733 F.2d 900 (Fed. Cir. 1984) (A §103 rejection cannot be maintained when the asserted modification undermines purpose of the main reference). As consistent with relevant law, there is no motivation to modify a reference under such conditions, and the claimed invention is further non-obvious. *See, e.g.,* M.P.E.P. § 2142, *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1741 (U.S. 2007) (“[W]hen the prior art teaches away from combining certain known elements, discovery of a successful means of combining them is more likely to be non-obvious.”).

The §102(b) rejection of claims 12-13 should be withdrawn as the '516 reference does not teach or suggest the claimed invention. Contrary to the assertions in the Office Action and as stated in Applicant's previous response of record, the '516 reference does not mention flare, much less measuring or accounting for the effects of flare. The assertion in the response to arguments section in the instant Office Action that Applicant's arguments "relate to unclaimed subject matter" regarding the "effects of flare" are clearly erroneous, because claims 12-13 explicitly recite "a first mask having features" including "a first portion of a flare pattern" (see lines 2-3 of claim 12). The '516 reference provides no correspondence to these limitations or to the claimed invention as a whole.

Moreover, this assertion regarding Applicant's discussion of alleged "unclaimed subject matter" is further misplaced because both the M.P.E.P. and applicable case law not only permit such discussion, they encourage the discussion of the invention as a whole as relative to limitations. In this instance, Applicant's discussion of the flare pattern and its applicability is done in accordance with the claim limitations as discussed above, and further in an effort to facilitate the Examiner's understanding of the claimed invention and relevant art. Accordingly, the cited structure in the '516 reference neither discloses a mask having features corresponding to a flare pattern nor discloses features that would accordingly present any information relative to the detection of flare as claimed. That is, while the claim limitations are directed to structure, not only does the cited '516 reference fail to disclose the claimed flare pattern structure, it does not function in accordance with the structure as claimed. The Office Action's assertion that "BOWES patterns may be used for flare" is devoid of any explanation or citation to any reference that would substantiate the Examiner's opinion, or demonstrate that the patterns in the '516 reference could at all function as claimed. Accordingly, the record has failed to establish that the '516 reference discloses all limitations in claims 12-13, and Applicant therefore submits that the §102(b) rejection must be withdrawn.

In view of the remarks above, Applicant believes that each of the rejections has been overcome and the application is in condition for allowance. Should there be any remaining issues that could be readily addressed over the telephone, the Examiner is asked to contact the agent overseeing the application file, Peter Zawilski, of NXP Corporation at (408) 474-9063 (or the undersigned).

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